T. D. A. COCKERELL

In the death in San Diego, California, on January 26, 1948, of Theodore Dru Alison Cockerell, we have lost one of our very well known entomologists and zoologists. The loss will be felt by all who knew him, for his quiet wit, charming whimsicality, kindliness, and his personal interest in fellow biologists endeared him to all. Although for many years especially interested in the taxonomy of wild bees, he was interested in and wrote about so many other fields that there is scarcely a taxonomic biologist who has not examined some of his papers. He wrote extensively on scale insects, land snails, slugs, fossil insects, fish scales, sunflower taxonomy and genetics, and paleobotany. Although he regarded himself as an amateur in botany, he described 32 new plants from New Mexico, in addition to others from other areas.

To compile a list of his publications would be a herculean task, and in addition to thousands of short papers, they include a general zoology book, a book entitled, "The Zoology of Colorado," numerous poems, and pamphlets on public affairs and politics.

Cockerell was born in Norwood, England, on August 22, 1866. Although he has written that his interest in natural history began as early as he can remember, he debated whether to go into the arts or into science. As a child he was interested in every phase of natural history, and this broad interest and enthusiasm continued until his death. He was a frail child and because of this he received little formal education but had time for many walks in the meadows and woods, where he acquired first hand information on natural history.

Because of an illness he left England in 1887 to live in Wet Mountain Valley, Colorado. There he began a catalogue of the biota of Colorado. In his work there he specialized in the Macrolepidoptera, molluscs, and flowering plants. Being ostensibly cured in 1890, he returned to England, and after about a year working in the British Museum was appointed Curator of the Public Museum, Kingston, Jamaica, where he went in

1891. Although continuing his previous studies, he acquired in Jamaica a special interest in the Coccidæ or scale insects, and described many new species.

In 1893, because of new signs of tuberculosis, he determined to return to the Rocky Mountain area and was able to exchange positions with C. H. Tyler Townsend, the well known dipterist. By this arrangeemnt Cockerell went to teach at the New Mexico College of Agriculture near Las Cruces. From this time on he lived in this country, and became a United States citizen.

Cockerell's interest in wild bees began in New Mexico, where they abound, and his first paper on them was published in 1894. From that year to this not a year passed without the publication of numerous papers under his name on these insects. A few still await publication. One of his most extensive and best bee papers was a revision of the genus *Perdita,* published in 1896, only three years after his arrival in New Mexico.

It was in New Mexico that Cockerell met Wilmatte Porter, with whom he collaborated in various bee papers both before and after their marriage. After brief stays at other schools in New Mexico and Colorado, the Cockerells moved in 1904 to Boulder, Colorado, where he became a member of the faculty of the University of Colorado.

The Cockerells maintained their home in Boulder for 44 years. During this time they were able to make expeditions, principally for collecting bees and fossil insects, to many parts of the world —Argentina, Peru, Madeira, Morocco, the Belgian Congo, South Africa, Australia, New Caledonia, Siam, Lake Baikal, and the maritime provinces of Siberia and Japan. After his retirement from the University of Colorado in 1934, he maintained an office there but spent part of each year elsewhere, usually in California. While there he made a special effort to stimulate interest in the coastal islands off Southern California and made several trips to them. The Cockerells spent considerable time in 1946 and 1947 at the Escuela Agricola Panamericana in Honduras. Here, as always, they collected bees, and I have a letter written only five days before his death, discussing the progress he was making in working up the bees obtained there. Prior to the work in Honduras, the Cockerells' previous major

expedition was to South Africa, where shortly after his retirement, they obtained, with the aid of others, the largest bee collection ever brought out of Africa.

Cockerell had a remarkable ability to accurately express himself, both verbally and in writing. He was always an interesting, quiet speaker, but this ability is best exemplified by his manner of writing papers. Examining bees with a hand lens, resorting to a binocular microscope only for occasional elusive details, he would write out the descriptions and discussions on separate small sheets of paper. When a sufficient number of these had accumulated, and the paper was completed, he would rearrange them if necessary, reread them, but without changing more than a few words the paper was ready for publication. This seems little short of miraculous to those of us who have to cross out, rewrite, and rearrange the greater part of what we write before submitting it for publication. More remarkable, his papers were consistently accepted in longhand by dozens of editors, for Cockerell never used a typewriter and apparently never was provided with a secretary.

Another remarkable feature of his working methods was his dependence, fully justified, upon his memory. Only rarely was it necessary for him to consult the Zoological Record or other source of reference to learn where a given description was published. Ordinarily when he wished to see the description of a certain bee, he could go directly to his reprint collection and take out the correct reprint. To a large extent it was memory also which made it possible for him to almost completely avoid making homonyms, a remarkable feat considering the thousands of species which he named.

Unlike many men who describe great numbers of new animals, Cockerell never attempted to maintain a monopoly in any of the groups in which he was interested. Indeed his greatest desire was to start others working in the same lines, so that additional work could be done in the fields in which he was so interested. For example, after hearing that I was interested in bees, the Cockerells took special pains to arrange a meeting and later invited me to spend a summer with them in Boulder, living in their home. Each day Professor Cockerell and I walked to

the University, he always carrying an insect bottle in a pocket so that we could collect any interesting specimen we might see in the vacant lots we passed. In his office he always gave freely of his vast store of knowledge about bees.

Cockerell has written, "We build on foundations often poorly established, and no matter how clever or industrious we may be, posterity will have to revise and correct much of what we have done." Speaking of his naming of so many bees and the need for proper revisional studies, he has said to me, "I have gathered the wood, now it is up to you to build the house." Thus we see one of his most admirable characteristics. Although his own work as largely purely descriptive, he never found fault when others, with more material available and after more thorough study, placed his names in synonymy; indeed he treated many of his own names in this way himself. Moreover, he fully appreciated the importance of extensive revisional and experimental studies and constantly urged individuals and groups to undertake such projects because of the light they would shed on evolutionary and distributional problems, matters in which he was vitally interested and highly conversant, although he wrote relatively little about them.

No account of Professor Cockerell would be complete without further mention of Mrs. Cockerell, his constant companion both in Boulder and in the field. The Cockerells had a very serious interest in conservation and through the years assembled a library of motion picture films on various natural history subjects. These they showed at every opportunity, wherever they might be. Indeed they made numerous long and difficult trips for the sole purpose of showing these films and talking about conservation, particularly to groups of children.—CHARLES D. MICHENER,[1] American Museum of Natural History.

[1] It should be mentioned that Cockerell wrote a series of autobiographical notes, from which some of the above information was obtained. These were published in Bios, 1935–1939, 6: 372–385; 7: 149–155, 205–211; 8: 12–18, 51–56, 122–127; 9: 21–25, 66–70, 117–124; 10: 35–41, 99–106.